Userguide

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Contamination-free handling of cell cultures with the ep*Motion*® 5075 LH

René Thierbach and Pablo Steinberg[1], Renate Fröndt[2]

[1]Stiftung Tierärztliche Hochschule Hannover, Hannover, Germany; [2]Eppendorf AG, Hamburg, Germany

Abstract

A high number of laboratory methods, in which animal and human cell cultures are used, have been adapted to the multiwell microtiter format. The advantages of these microtiter plates are e.g. the possibility to handle simultaneuously various different experimental groups as well as the possibility to use automated systems for liquid handling and data acquisition. Here, we demonstrate how contamination of cell cultures can be avoided when working with the automated pipetting system ep*Motion*® 5075 LH.

Introduction

Especially when using liquid handling systems the main question to be answered is whether one can work under sterile conditions with these systems without incorporating them into a laminar flow system. The aim of this report is to show that the continuous contamination-free handling of cultured cells over a period of time of three weeks is possible with the ep*Motion* 5075 LH, an automated pipetting system with a safety hood but without a laminar flow system and without an ultraviolet light source.

Working process

V79 cells (Chinese hamster fibroblasts) were seeded manually in a 6-well microtiter plate and cultured in Dulbecco's modified Eagle's medium supplemented with 10 % v/v fetal bovine serum, 100 U/ml penicillin and 100 µg/ml streptomycin. The cells were split 1:50 twice a week. In the case of the ep*Motion* 5075 LH the only safety precautions taken were to avoid uncontrolled air flow and to use 70 % ethanol as disinfectant. One half of the cell culture medium was changed daily so that 20 individual cell culture handling steps were performed with the ep*Motion* 5075 LH during the three week period of time.

After three weeks no bacterial or fungal contamination was evident in the cell cultures as determined by light microscopy (Figure 1).
The mycoplasma test (Venor®GeM, Minerva Biolabs) carried out at the end of the experiment was negative (Figure 2).

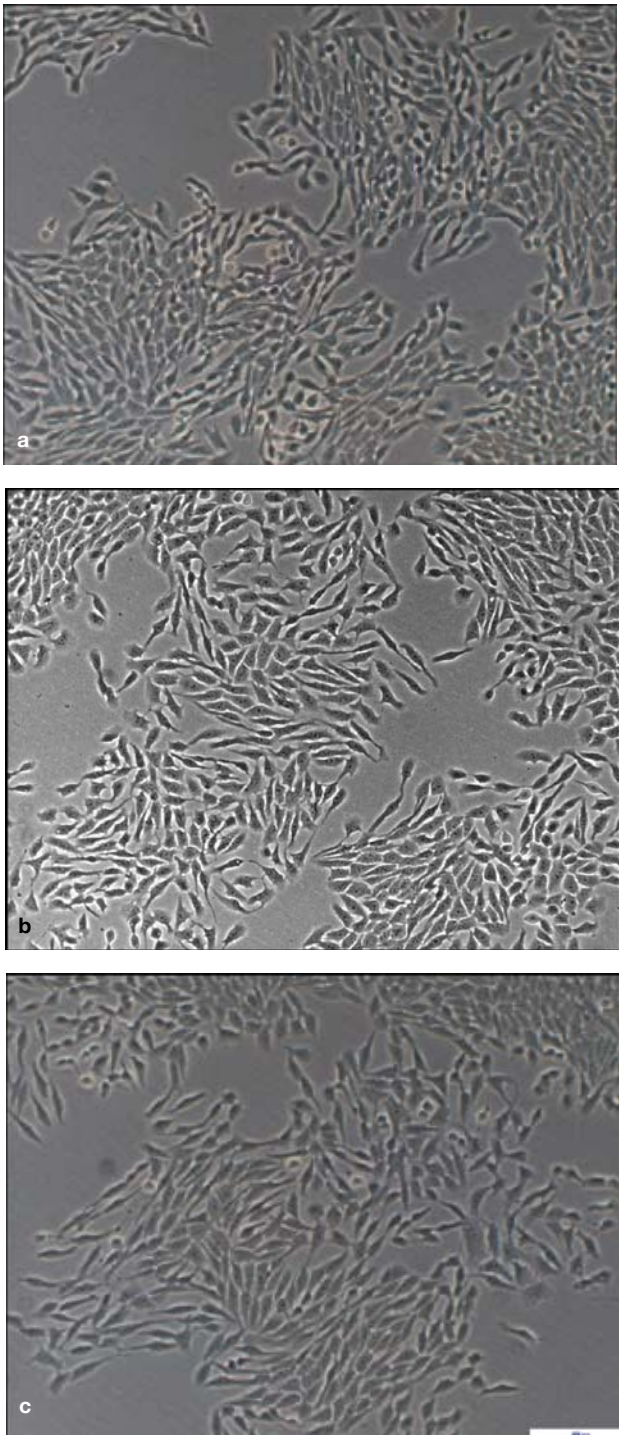

Figure 1: Microphotographs of the cells in (a) week 1, (b) week 2 and (c) week 3. (Zeiss Axiovert 25, magnification 10x, phase contrast)

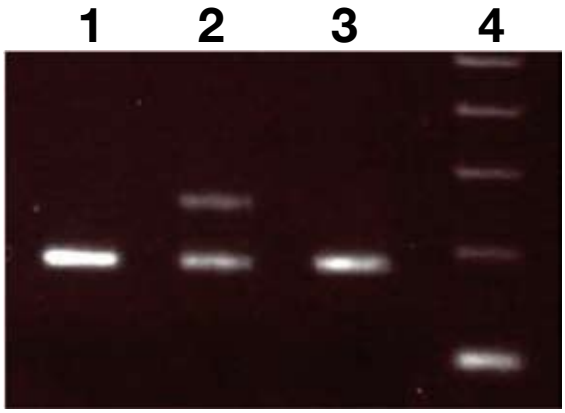

Figure 2: Diagnosis of mycoplasma.

Cell culture supernatant was analyzed with the Venor®GeM Mycoplasma PCR Detection Kit. No contamination was detectable.

1 – tested supernatant
2 - positive control
3 – negative control
4 – DNA ladder

Conclusion

This study shows that a continuous contamination-free handling of mammalian cell cultures over three weeks is possible with the ep*Motion* 5075 LH. An advantage of the ep*Motion* 5075 LH is that one does not need to place it in a laminar flow workbench in order to avoid microbial contamination.

References

Operation manual for ep*Motion* 5075 LH

Ordering information

Product	Order no. international	Order no. North America
ep*Motion*® 5075 LH	5075 000.008	960020006

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Eppendorf North America, Inc. · One Cantiague Road · P.O. Box 1019 · Westbury, N.Y. 11590-0207 · USA
Tel: +1 516 334 7500 · Toll free phone: +1 800 645 3050 · Fax: +1 516 334 7506 · E-mail: info@eppendorf.com

Application Support Europe, International: Tel: +49 1803 666 789 · E-mail: support@eppendorf.com
North America: Tel: +1 800 645 3050 ext. 2258 · E-mail: support_na@eppendorf.com
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